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### ABSTRACT

This document is intended for state level administrators responsible for planning, developing, and implementing policies and services related to the Infant-Toddler Program (Part H) and the Preschool Program (Part B) of the Education of the Handicapped Act Amendments of 1986. The document is designed to provide a framework for planning and conducting a cost analysis composed of several sequential steps. It also offers ideas about projecting costs, examples of methods used in various states, and results from individual states for use as reference points. The guide is organized around the nine cost analysis steps. These are: (1) state the purpose for conducting the cost analysis; (2) define the population to be served; (3) determine the number of eligible children; (4) determine how many children will be served; (5) determine how many children are currently being served and how many are unserved; (6) describe services and settings; (7) select and implement a cost methodology; (8) identify existing resources and potential gaps; and (9) report the findings and make recommendations. (DB)

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### **ESTIMATING THE COSTS OF PROVIDING**

### EARLY INTERVENTION AND PRESCHOOL SPECIAL EDUCATION

**SERVICES** 

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### INTRODUCTION

This document is directed to those persons in each state\* who are responsible for planning, developing, and implementing policies, and organizing and providing services related to the Infant-Toddler Program (Part H) and the Preschool Program (Part B, Section 619) of the Education of the Handicapped Act Amendments of 1986, Public Law 99-457.

The purpose of this document is to offer ideas about projecting costs, provide examples of methods used in various states, and present results from individual states that might be used as reference points. Since the abilities of states to estimate costs will vary due to differing levels and quality of data and data collection capabilities, as well as difference in resources available to devote to conducting cost analysis, the methods also will vary. There is no single correct way of projecting costs. Since a particular method may work in one state and not in another, several methods are discussed.

This document and the cost figures it presents should not be used as a substitute for conducting your own cost analysis. Using cost figures from other states without any cost analysis of your own will not satisfy all of the questions key decision makers in your state will ask. However, being able to cite results from other states to support your own work can be very useful.

The document is designed to provide a framework for planning and conducting a cost analysis composed of several sequential steps (see Figure 1). The description of this framework includes various costing methodologies with examples from states that have employed these methodologies. Appendix A provides several worksheets to assist carrying out a cost analysis.

No matter what method you us to estimate costs, it is probably well worth the effort to assemble a small group of people who are familiar with the state's services and settings. This group can advise those responsible for conducting the study. Consult these advisors from the early stages right through to the final step of preparing the results.

As you read this document, keep in mind that it is designed to assist in projecting the total costs of providing early intervention and/or a free appropriate public education for very young children with handicaps and their families. However, after estimating total costs, to determine the amount of additional funds needed, you must subtract all current expenditures, existing resources, and potential funds that might be available but are not currently being fully utilized (e.g., increased use of Title XIX, Medicaid). This will allow you to present an accurate picture of what funds currently are available and what additional state funds are needed to implement a statewide system. That picture is important for two reasons:

- One of the goals of Public Law 99-457 is to maximize the use of existing and potential resources and "to facilitate the coordination of payment for early intervention services from Federal, State, 'ocal, and private sources (including public and private insurance coverage)" Sec. 671(b)(2); and
- 2) If these resources are not considered, and utilized, the result may be a perspective on additional resources that is unrealistic and not acceptable to those who make or seek increases in appropriations.

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<sup>\*</sup>NOTE: The word "state" as used in this document refers to any state, territorial, or commonwealth governing jurisdiction in the United State, including as the District of Columbia, and the Bureau of Indian Affairs.

### Figure 1

### A Framework for Planning and Conducting an Analysis of State-wide Costs

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STEP 1:	State the Purposes for Conducting the Cost Analysis
STEP 2:	Define the Population to Be Served
STEP 3:	Determine the Number of Eligible Children
STEP 4:	Determine How Many Children Will Be Served
STEP 5:	Determine How Many Children Are Currently Being Served and How Many Are Unserved
STEP 6:	Describe Services and Settings
STEP 7:	Select and Implement a Cost Methodology
STEP 8:	Identify Existing Resources and Potential Gaps
STEP 9:	Report the Findings and Make Recommendations
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Finally, definitions of developmental delay, eligibility criteria, appropriate levels of service, service settings, and levels of funding all can be significantly influenced by what is acceptable and fiscally feasible. Securing state funding for early intervention and preschool special education services is subject to the unique economic and political considerations within each state. While acknowledging these realities of public budgeting, this document makes a conscious effort to present only costing methodologies and leave the political considerations to each state.



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### A FRAMEWORK FOR PLANNING AND CONDUCTING AN ANALYSIS OF STATE-WIDE COSTS

### Step 1: State the Purposes for Conducting the Cost Analysis

You first should have a clear, succinct statement about why you are conducting a cost analysis. States may conduct an analysis of the costs of providing early intervention and/or preschool special education services for various reasons. A cost analysis may be needed to respond to specific questions from legislators, agency heads, and other key decision-makers. It might be used as background for drafting or passing legislation. It could identify gaps that exist in services required under P.L. 99-457, and, of course, contribute to the process of determining what state appropriations will be.

Being clear about the reasons for conducting a cost analysis from the beginning will make the process more focused and will likely improve the usefulness of the results. Knowing, for example, what specific questions you want to answer will help in collecting pertinent data and selecting appropriate analysis procedures. Also, knowing the intended and other possible audiences for the results before beginning will help guide the process and influence decisions along the vay.

### **Step 2:** Define the Population to Be Served

Defining the population to be served is critical to a successful cost analysis. It is difficult, if not impossible, to estimate costs without clearly and concisely defining the population to receive early intervention and/or preschool special education. Further, the eligibility criteria, in part, determine the services that will be needed and the potential number of children that will be served.

The process of defining the population varies between the Infant-Toddler Program (Part H) and the Preschool Program (Section 619) of Public Law 99-457. Part H allows states flexibility in determining their definition of developmental delay and established conditions that have a high probability of resulting in developmental delay. Part H also allows states, if they choose, to include children who are at risk for developmental delay. Section 619 provides less flexibility in defining the eligible population because the states must conform with federal definitions of disabling conditions.

For Part H, the flexibility of defining the eligible population makes estimating costs more complex. Adopting a more restrictive definition would mean serving fewer children but at a higher average cost per child. A less restrictive definition would mean a lower average cost, but, because more children would be served, the total cost inevitably would be higher. You should obtain a preliminary consensus about the definition before you begin the calculations. Adjustments may need to be made to the definition or criteria later, but the more agreement early, the easier the task.

If your state is still considering alternative definitions for the eligible population, you still could plan and conduct a cost analysis using an "if, then" approach; i.e., "If a particular definition is adopted, then the cost implications would be - ."

### Step 3: Determine the Number of Eligible Children

The next step in determining the costs of providing early intervention or preschool special education services is to estimate the number of children that will be eligible for services each year, given the definition adopted by the state (see Worksheet #1 in Appendix A).



Since many states do not have reliable and valid data on the prevalence of disabilities or developmental delays in children below school age, there is a tendency to want to know and use rates from other states. Estimating the number of children that might be eligible in your state based on rates of other states is an acceptable method, if you know what definitions of developmental delay and what eligibility criteria the other states are using. If their definitions and criteria are different from yours, then their prevalence rate may not be appropriate for your state.

Among the states that have conducted a statewide cost analysis, several methods have been used to estimate the number of children expected to be eligible for early intervention or preschool special education services. The easiest way of estimating the number of children who will be eligible for services is to find a prevalence rate (or rates) that will be accepted and can be defended. Then multiply the rate by the infant/toddler or the preschool population in your state. Below are some examples of ways to generate a prevalence rate.

### **Using Peer State Data**

Ohio estimates that 4.4 percent of its preschool population will receive special education and related services. This incidence rate reflects the number of children that would likely be served, not the number of children ages 3 through 5 years with handicaps (see Step 4 for explanation). Typically, there is a lower participation rate among 3-through-5-year-olds than for school-age children; the rate is lower than the number of children who actually have handicaps in that age group.

Ohio does not have a mandate to serve preschool children until 1991. In order to estimate how many children will be served when the mandate becomes effective, Ohio compared itself with other states that have mandates and that are similar in population and demographic characteristics. From the states considered, Illinois was selected as the state most similar to Ohio. It was found that Illinois and Ohio both serve approximately the same percentage of children with handicapping conditions in the 6-through-17 age group (9.0 percent and 9.2 percent, respectively). An assumption was made that the rates for the preschool age group in Ohio also would be similar to those in Illinois. Since Illinois serves 4.2 percent of its preschool population, Ohio concluded that a prevalence rate of 4.4 percent was a reasonable estimate for Ohio.

Maryland also uses data from other states in estimating prevalence. Maryland estimates that 3.5 percent of its infant and toddler population (birth to age 3 years) will meet the definition of eligibility adopted by their Interagency Coordinating Council. Maryland has had a special education mandate for infants from birth since 1980; however, to determine the expected increase in the number of infants and toddlers that might be served through expanded eligibility, Maryland surveyed other states to identify those currently providing services under comparable definitions. Maryland's prevalence rate is based on the average of those states.

### Using In-State Data

The State of Washington is using a prevalence rate of 3.2 percent for its calculations in implementing Part H.<sup>3</sup> Washington's prevalence rate is based on information from its High Priority Infant Tracking Program and its Birth Defect Monitoring System. Approximately 1.8 percent of the birth-to-1 age group, 3.6 percent of the 1-to-2 year-old age group, and 4.3 percent of the 2-to-3-year-old age group were estimated to need some level of early intervention service. When the numbers from the three rates are averaged, a rate of 3.2 percent results. Prevalence rates for each of the age cohorts were used because the ability to identify delays is often dependent upon the age of the child, and the needs of the child and family may be different



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depending upon the child's age. This may be an important consideration in determining the costs of services as well.

The final step in determining the number of eligible children is to multiply the selected prevalence rate by the number of infants and toddlers or preschool age children in your state.

### Step 4: Determine How Many Children Will Be Served

The total number of eligible children in the state should <u>not</u> be the final basis for estimating the costs of providing services, because not all eligible families will choose to receive services. It is necessary, therefore, to determine what portion of the eligible population actually will be served.

Washington's prevalence rate indicated that approximately 6,700 infants and toddlers would be eligible for services. During budget preparations, however, it was estimated that only 80 percent of this number (approximately 5,400 children) would be served. The lower estimate was based on several factors: 1) not every eligible child will be identified; 2) not all children will be served through state-administered or state-funded programs; and 3) some parents will elect to receive services through private providers or may not choose to have services provided to their child from any source.

There may be a tendency toward overestimating the number of children who actually will enter the service system. Remember, you should begin with "How many will be eligible?", but the real question should be "How many children will be served?" Identify the unique variable(s) that your state should use to calculate what percent of the eligible population actually will be served.

### Step 5: Determine How Many Children Are Currently Being Served and How Many Are Unserved

The next step is to determine how many eligible children currently are being served, and, from that figure, calculate the number not yet served in the state (see Worksheat #1 in Appendix A). For example, Ohio estimates that 21,000 preschool children will be served in special education programs if a mandate is adopted. In 1989, Ohio was serving 7,205 preschool children. This would mean an increase of 13,795 preschool children receiving services. Similarly, Kentucky estimates that a mandate for preschool services means that 11,196 children ages 3 through 5 years would be eligible 4. Kentucky has determined that all eligible 5-year-old children are already being served (5,721 in 1988-89) through their kindergarten program. An additional 5,475 children, ages 3 through 4 years, would require special education and related services to meet this mandate.

In completing this step, you will frequently encounter various barriers. For example, the different agencies in a state that provide early intervention and/or preschool special education services invariably have different and confounding policies and procedures for recording and reporting information about their services and to whom these services are provided. For example, some agencies may report numbers of children served, but not divide them into the needed age categories (e.g., birth through 3, or 3 through 5). Some agencies may report numbers of children in such a way that the children eligible under Part H and/or Section 619 can not be identified within larger or different groupings. Some agencies (e.g., health agencies) record and report their services by service units provided, rather than by children/families served. Some agencies may conclude that sharing the information you need violates policy concerning confidentiality of information. Some agencies may have their records in a computerized data storage and retrieval system, that is incompatible with yours. The list goes on.



A state's Interagency Coordinating Council and other state and local interagency collaboration efforts are arenas for exploring ways to overcome such barriers. Garnering the support of agency heads, the legislature, and/or the governor's office for your cost analysis also can enhance cooperation in overcoming the barriers.

In addition to these problems, several states have reported difficulty in preparing an unduplicated count (i.e., being able to count a family served by more than one agency only once). If this is a barrier in your state, you may wish to conduct a survey to determine what percentage of children are served or have service payments made by more than one program or agency. The amount of duplication you find will depend upon how broadly you define the population and their service needs. The incidence of duplication usually is low for children's services when the focus of those services is ameliorating or preventing developmental delays. Likewise, meeting the needs of families may involve multiple programs or agencies but, typically, only a small percentage of families receive the same type of service from different programs. Another point to keep in mind is that every child counted twice means another child you estimated as eligible may be unserved.

### Step 6: Describe Services and Settings

At this point in your cost projection, you need to have an overall vision of the statewide system of services in order to know what services you want to provide and to be able to describe the services and settings you desire. Being able to answer the following questions will help you get a clear picture of the statewide system:

What agencies currently provide services?

Will these agencies continue to provide the same services?

Will their roles be reduced or expanded?

Will all programs look the same?

Will certain programs provide certain services to certain children?

Do the programs have the capacity to serve more children?

Are there geographical differences to consider?

Are there personnel differences depending upon the setting?

Would those personnel differences have cost implications?

Are there other factors with cost implications to consider, such as transportation, overhead, facilities, or equipment, depending upon the needs of the children or the settings in which services are provided?

Answering these questions will help determine what the costs of services will be for an "average" child, for different program models, for different disabling conditions, or for different service units.



### Step 7: Select and Implement a Cost Methodology

The costing method you use might be dependent upon the type of data you can collect. Therefore, before selecting and implementing a cost methodology, consider what information you already have on hand that may be useful. Have you conducted or can you conduct demonstration projects? What level of data collection abilities do you have? How much effort and resources can you give to the cost analysis process? Obviously, the more time and money you can devote to cost analysis, the better the results will be. However, at some point your resources will be limited and/or the return will not be worth the investment.

Four types of cost methodologies are presented in the following pages: (1) Average Per Child Cost; (2) Program Average Cost; (3) Disabling Condition Average Cost; and (4) Average Per Unit of Service Cost. Different states are used as examples in each of these sections. The method presented here for a particular state usually reflects the method that state has used to develop a final budget request. However, some states have employed a combination of methods to estimate costs. You may find a combination of methods useful in estimating costs as well.

One important factor to keep in mind when calculating costs is that children enter and exit the system at different times during the school or calendar year. Child find is an ongoing progress. Not all children will be evaluated and assessed at the beginning of the year; not all children will receive services for the full year. Because of this, you should attempt to determine the average length of time a child is served each year (i.e., months per year). For example, if the "average child" receives services for six months and your cost estimates are based on a full twelve months of services each year for each child, the result is that the projected cost may be well above the level of funding actually needed.

Some of the costs of serving a child--such as evaluation, assessment, and IFSP or IEP development--will be incurred by each child and, in a sense, are "fixed". This means that an average cost for these components can be used regardless of when the child enters the system. However, some of the other costs--such as therapies and case management (under Part H)--are more dependent upon the length of time the child is served during the year.

Another important consideration is how the method used to project costs would relate to the method used to distribute funds. The method you select to determine costs may drive the process by which funds will be distributed, whether or not that is your intention. If a per child average cost is used, programs will likely be reimbursed on a per child basis. If a per unit of service cost average is used, reimbursement probably would be dependent upon the number of service units provided.

Finally, whatever cost methodology, or combination of methodologies, is selected and carried out, the result should be the ability to answer this bottom line question: What is the total annual cost of providing all of the children and families who will enter the system (see Step 5) with the desired services in the desired settings throughout the state (see Step 6)?

### Average Per Child Cost

Much of what has been reported by states in the area of estimating costs of early intervention and special education services has used an average per child cost method. This may be due in part to the relative ease of both computing and using an average per child cost (see Worksheet #2 in Appendix A). There are three different approaches to determining an average per child cost.

Using Peer State Data. One approach is to identify one or more states with a similar definition of eligibility to that of your state to help determine a suitable average cost. When using cost



figures from other states, however, make sure you know what is included in their figures. Are their services provided as part of a ten-month or twelve-month service year? Does the cost include such unilateral and expensive services as assessment and evaluation, case management, and transportation? Are all the desired direct services, such as therapies and special instruction, included? As stated earlier, using cost figures from another state cannot take the place of conducting your own cost analysis, but could enhance an in-state analysis.

Using National Data. Decision Resources Corporation gathered information for the U.S. Department of Education from the 1985-86 school year and found that the national average cost of special education for preschool children across all programs was \$3,437, over and above the costs of providing regular education. If this figure is adjusted for inflation, the average would rise to nearly \$4,200 per child in 1990 dollars. Bear in mind, however, that Decision Resources' expenditures survey examined practices in 1985-86, prior to the passage of Public Law 99-457. Considering the new incentives for expanding services, these findings may no longer reflect expenditures of more recent school years. Be careful that cost figures match any new service requirements. Also, keep in mind that revised personnel requirements (e.g., new or additional certification requirements) may dramatically distort applicability of pre-existing cost estimates.

Ohio was used earlier as an example of a state that compared itself with another state to determine a prevalence rate. To project a preliminary average per child cost, however, Ohio used existing national school-age costs contained in the 10th Annual Report to Congress (covering the 1986-87 school year) as a basis for projecting future preschool costs. A three per cent per year increase for inflation was used to adjust the national costs to 1988-89, so that for 1988, the average cost per child was determined to be \$4,970. This approach assumes that national data are reasonably accurate, that the current level of expenditure is acceptable, and that this cost can be extended to unserved preschool children. However, average cost determined by this method does not include additional start-up costs, additional buildings, training and recruitment of new personnel, or other new overhead. A comprehensive "Program Practices and Costs Study" is currently underway in Ohio to collect more accurate data regarding the cost of providing preschool special education and related services.

<u>Using In-State Data</u>. Kentucky is using a slightly more intricate average per child cost method, which employs pieces of other models, to determine the cost of providing services to 3- and 4-year-old children.

Kentucky has three major types of agencies providing educational and developmental services to preschool children. These are local school districts, Head Start agencies, and private programs. A survey was sent to a sampling of these agencies across the state to collect information on current costs of serving children age 5 years. Estimates of costs were provided over a range of service intensities identified by service levels. For example, children with mild handicaps would need less intensive services and might participate full-time in a regular program. They would need less than two hours per week of special education and related services, plus transportation. Children with severe handicaps, in contrast, would need more intensive services. These children might require a half-day, center-based program of special education, four hours of therapy during the week, specialized transportation, and extended year services to prevent regression.

In order to project an average per child cost of comprehensive services, a model for estimating the amount and types of services needed by the "average" preschool child with handicaps was developed. This model contains three levels of service need, which include children with low service needs (Level I), children with moderate service needs (Level II), and children with intense service needs (Level III). The levels reflect service needs, regardless of



Figure 2

Average Cost for a Preschool Child with Handicaps in Kentucky by Intensity and Diversity of Services

LEVEL I	COST	LEVEL II	COST	LEVEL	COST
Education:	Main- Stream	Education:	\$2,438	Education:	\$3,501
Therapy: (3/4 hr/wk for 35 wks)	\$1,110	Therapy: (1 hr/wk for 35 wks)	\$1,406	Therapy: (3 hrs/wk for 43 wks extend year)	\$4,218
Other: (1/2 hr/wk for 35 wks)	\$ 798	Other: (1/2 hr/wk for 35 wks)	\$ 798	Other: (1 hr/wk for 35 wks)	\$1,806
Transportation:	\$ 608	Transportation:	\$1,185	Transportation:	\$1,185
Total Cost of Services	\$2,516		\$5,827		\$10,710

From Kentucky Services for Preschool Children with Handicaps: Partnerships in Education (p. 23), Frankfort, KY: Department of Education (January 1990). Reprinted with permission.

disabling condition or categorical label. The estimates of children to be served in each level were extrapolated from the relative proportion of handicapping conditions noted on the schoolage child count. The costs of this model range from \$2,516 in Level I to \$10,710 in Level III (see Figure 2). The average cost, adjusted for inflation from 1989 calculations, is \$5,242 per child.

### **Average Cost By Program Model**

If your state has several uniquely different service programs you may wish to use a program average cost methodology (see Worksheet #3 in Appendix A). Using a program average cost method recognizes that cost differences exist depending upon the program model used to provide services. Some variation in program costs can be attributed to differences in staff salaries, caseloads or adult-child ratios, and the comprehensiveness of the program. However, it is clear that different programs will generate different costs.

Work done at the Early Intervention Research Institute at Utah State University illustrates that there may be a great deal of variation in the costs of different kinds of programs. For example, a one-time-per-month, home-based program that meets all of the guidelines contained in Public Law 99-457 can be delivered for as little as \$1,500 per child per year, whereas a center-



Figure 3

Projecting Costs of Providing Services to Children 3 through 5 Years of Age in South Carolina

Type of Program	Number of Children	Cost per Child	Total <u>Cost</u>
Itinerant Self-contained Home-based Speech Related services	2,000 950 750 5,300	\$4,532 \$4,201 \$5,550 \$ 913	\$ 9,064,000 \$ 3,990,950 \$ 4,162,500 \$ 4,838,900 \$ 615,377
—Total	9,000		\$22,671,727

From A Report to the General Assembly of South Carolina on Education and Related Services for Preschool Handicapped Children (Ages 3-5) (p. 58), Columbia, SC: Department of Education, Office of Programs for the Handicapped (March 1990), [Draft]. Reprinted with permission.

based program that provides one half-day of services five days per week for children with mild and moderate disabilities would cost about \$4,500 per year. The same center-based program provided for children with severe disabilities would cost approximately \$7,000 per year. A full-day program that provides center-based services five days per week, plus weekly home visits, for children with severe handicaps would cost approximately \$12,000 per child per year.

South Carolina has developed different averages based on the type of program the child requires. State planners began by projecting the number of preschool children who would be served in each of four program models, the projected average cost of each model for a ten-month year, and the total costs for each program model. Related services such as occupational and physical therapy, and audiology were included as a separate category under Total Cost. Transportation and employee benefits were not included. The resulting cost comparison is displayed in Figure 3. Most of the children who will be receiving itinerant and speech programs also will receive regular education in another setting. If a child is enrolled in a daycare program, the itinerant teacher or speech therapist would go to this setting to provide the services in the child's Individualized Education Program.

### Average Cost by Disability

A third method of projecting costs involves the use of calculations of service costs by specific disabilities (see Worksheet #4 in Appendix A). This method requires more knowledge about the children who will be served. It also acknowledges that children have different needs and will generate different early intervention or special education costs.

In 1989, using data from the Rand Study (adjusted for 1990-91 dollars), Gray Garwood, a nationally known expert in early childhood, calculated some national average costs of serving preschool age children with disabilities. Figure 4 displays these results.



Figure 4

Analysis of National Per Costs of Providing Services to Handicapped Preschoolers by Type of Disability (1990-91 Dollars)

Disability Category	Estimated Cost	
Learning Disability Educable Mentally Retarded Trainable Mentally Retarded Severe Mentally Retarded Emotional Handicapped Deaf Partial Hearing Blind Partial Sight Orthopedically Handicapped Other Health Impaired Multihandicapped	\$ 5,648 \$ 5,769 \$ 7,851 \$ 8,911 \$ 5,428 \$ 12,781 \$ 9,746 \$ 10,994 \$ 5,418 \$ 8,487 \$ 3,861 \$ 15,622	٠

Adapted from, Garwood, J. (15 March 1989) Final Report: A Study of the Fiscal Impact of Providing Special Education and Related Services to South Carolina's Unserved Preschoolers with Handicaps. [Unpublished paper]. Reprinted with permission.

The state of Washington has used a variety of approaches to determine the costs of implementing Part H, one of which was average cost by disability. Washington serves infants and toddlers with special needs through three different service systems: developmental disability centers, neuromuscular centers, and local school districts. The funding for these systems flows in such a way that determining an average cost per child is nearly impossible. Therefore, reimbursement rates for older children receiving special education services were used as a basis for estimating the costs of providing early intervention services for infants and toddlers.

Since Washington does not label preschool children, infants, or toddlers by disability categories other than "developmentally handicapped," the disabling conditions and the types of services needed are not readily determined from the data collected. To determine the types of services that would be required in implementing Part H, the state used information collected about children in first grade. Categories such as "learning disabled" and "mild mental retardation" were excluded as perhaps being inappropriate for very young children. Prevalence rates were calculated for the remaining categories. These rates then were applied to the projected number of infants and toddlers who would enter the early intervention service system during the year.

Figure 5 shows the resulting numbers of children, by disability category, and the projected expenditures for these children. However, the total cost presented in Figure 5 is not the final cost Washington expects in implementing Part H. Current expenditures for infants and toddlers have not been subtracted, nor have potential funding sources, such as Medicaid and private insurance, been subtracted from the total. This will significantly reduce the final cost.



Figure 5

Costs of Implementing Part H in Washington State
Based on Special Education Expenditures

Disabling Condition	Number of Children	Cost per Child	Total Cost
Serious Behavior Disability Orthopedically Impaired Health Impaired Moderate Mental Retardation Severe Mental Retardation	577	\$4,537	\$ 2,617,993
	701	\$5,869	\$ 4,113,819
	1808	\$4,500	\$ 8,135,548
	475	\$6,187	\$ 2,938,588
	97	\$7,658	\$ 742,826
Multihandicapped Deaf Hard of Hearing Visually Impaired Deaf-Blind Communication Disordered	863	\$8,003	\$ 6,906,589
	162	\$6,930	\$ 1,122,620
	561	\$6,262	\$ 3,512,702
	114	\$5,142	\$ 586,160
	4	\$8,364	\$ 33,455
	39	\$1,606	\$ 62,644
Total	5401		\$30,772,944

From unpublished research by John Bowden (1990).

In projecting costs, Washington's 1989 average special education expenditures for children, ages 6 to 21 years, were used as bases for each category. These expenditures were adjusted to account for two major differences: (1) The average infant or toddler is not in the service system for as many months each year as the older children; and (2) The average per child costs for infants and toddlers are expected to increase due to new service requirements, such as case management.

The average expenditures for the older children were used as a starting point, rather than extrapolating from current expenditures for infants and toddlers for a variety of reasons:

Poor data exist on current expenditures for infants and toddlers.

Expenditures for older children are considered more accurate indicators of actual service cost.

Current average expenditures for older children exceed the average expenditures for infants and toddlers.

Infants and toddlers requiring services, on average, will have more intensive needs, and most of these services are health related.

Infants and toddlers with less severe disabilities or delays are less likely to be identified, diagnosed, and served.

Adult-to-child staff ratios for very young children should be lower.



### **Average Cost by Unit of Service**

An average per service unit method is more complicated than other methods discussed in this document. It requires more data than any of the other three methods presented, but it provides more information for making decisions about services. A per unit cost method should look not only at the personnel costs, but, ideally, also at the costs associated with the setting in which services are delivered. You will need to know the costs of each type of service, differences in costs depending on the setting, and the number of units of each service in each setting that will be utilized (see Worksheet #5 and #6 in Appendix A).

Maryland provides an example of a state that is using a per unit of service method to project the costs of services for infants and toddlers. In Maryland, the costs vary greatly with the type of service provider, the funding mechanism, and the setting. The cost per unit of service developed by Maryland is a combination of reimbursement amount, prevailing fee, and actual cost.

The state used a limited sample of current providers in developing its cost per unit of service estimate. After determining how many children would receive early intervention services, Maryland estimated the percentages of children that would utilize each type of service. The utilization percentages were based on the experiences of early intervention specialists, model demonstration projects, and state agency data. Maryland also estimated the average number of service units that would be utilized, since some children need physical therapy three times a week, other children require treatment only once a week, and others may require services on a monthly basis.

Figure 6 illustrates the costs and utilization estimates for each type of service. It also projects the total cost to Maryland for providing each service to all those eligible children who need that service. For example, it is estimated that physical therapy will be used by 40% of the eligible population (2814 children) at an average rate of one unit of physical therapy per child per week, at a cost per unit of \$41. The total estimated cost to the state for a given year would be \$5,985,318 for physical therapy services.

Maryland's actual cost will vary based on the mix of providers utilized by the eligible population and many other factors. The state will refine its projections as additional data become available, but for current planning purposes, Maryland is using an average cost per infant or toddler of \$7,441.

### **Step 8:** Identify Existing Resources and Potential Gaps

If Steps 1 through 7 have been completed, you should have estimated the total annual cost of services for eligible young children and their families in your state. The next step is to identify all of the financing resources currently available to support the services you wish to provide. This includes not only the resources currently being used, but potential resources as well. You also will need to identify what gaps in funding might exist. Remember that the total cost of your early intervention or preschool program will not be covered by a single state appropriation, but will come from a number of federal, state, and local sources, both public and private.

The state of Washington projects that it will serve 80% of its eligible infant/toddler population (5400) children. Since 3000 infants and toddlers currently are receiving services, there is a gap of 2400 children from whom services will need to be provided. The financial implications of such a gap are obvious. In addition, the 3000 children currently being served are considered "underserved" based on P.L. 99-457 requirements. This is because Individualized



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Figure 6

## MARYLAND INFANTS AND TODDLERG PROGRAM COSTING OF EARLY INTERVENTION SERVICES SERVICE UTILIZATION

EARLY INTERVENTION SERVICES	ESTIMATED UTILIZATION RATES	NUMBER CHILDFEN SERVED	UNITS PER CHILD	TOTAL UNITS NEEDED	COST PER UNIT	TOTAL COST OF ALL UNITS
Initial Evaluation	100\$	7,035	-	7,035	\$287	\$2,016,750
dream management	100\$		12		2	2,38
phisis in the second	1001	7,035	52	365,820	\$ 20	316.4
Species Interapy	40*	2,814	52	146,328	4	\$5,985,318
Openational mecuan	30%	٦,	52	109,746	9	\$6,584,760
Hosith Comitation	25%	1	52	91,455	\$ 30	2,743.6
Homo Wichtham	15*	, 05	52	4,87	_	8.433.2
MORO VIGILORA TARATA	15%	0	52	4,87	4	2,325,7
Nursing Counties	154	0	52	~	m	1.646.1
Nutstilly Services	15\$	1,055	52	4,87	m	1,872,5
refullogical services	15\$	1,055	52	,87	\$ 53	2,901,9
	10*	704	. 52	6,58	m	1.097.4
neutoai del Vices Nutrition	10*	704	52	6,58	17	6.241.9
Destite of the	*01	704	52	, 58	4	1.463.2
Respire care	10*	704	104	3,16	~	1.463.2
Special Molk Services	10%	704	52	36,582	3	1.097.4
Speech Facility ogy	104		52	36,582	IJ	1,829,1
Againagh	24	352	-	352	5	

SE such service occupational therapy would be counted as occupational therapy, not as a home visit. early intervention another receiving is. an infant which \*A home visit in

Reprinted with permission from Estimated Fiscal Impact of Early Intervention Services in Maryland (n.p.). (16 October 1989). Baltimore, MD: Office of the Special Secretary for Children, Youth & Families. [Draft]

Family Service Plans have not been developed for each child and family, case management as described in Part H is not provided, and some services, such as family training and counseling, will need to be improved. This constitutes a significant additional gap in service which Washington's analysis has identified, and for which funding will have to be provided.

### **Step 9:** Report the Findings and Make Recommendations

The final step in the process of conducting a cost analysis is to prepare a report or a series of reports on the findings of the study, and what is understood to be the implications of the study for the state's future plans. The report may go on to include recommendations and options to be considered by those who must act upon the findings. Below are issues to consider in developing your report.

<u>Purpose</u>. In preparing the report, it is helpful to revisit the purposes for which the study was conducted (see Step 1). Consider whether or not those purposes still adequately capture the scope and intent of the study, or if the purposes have evolved and/or expanded during the course of the study. Whatever the purposes are understood to be, they probably will provide the basic organizational structure for the report. A clear statement of those purposes should introduce the report, even if it is organized according to some other structure.

Audience. It is also helpful to re-identify the primary audience(s) for the study, and any other audiences who have an interest, or perhaps a stake, in the findings and recommendations of the study (see Step 1). Have the audiences identified at the start of the study changed or expanded during the course of the study? Has conducting the study had any impact on those audiences that should be taken into account in preparing the report? This is particularly important to consider, since conducting such a study probably has involved a wide range of agencies and other groups, and may have affected their view or level of concern about the way in which services will be financed. Those interests and concerns could be acknowledged and perhaps addressed in reporting the findings and in the recommendations.

It probably will be necessary to prepare more than one version of the report, based on the needs of the various intended audiences. The scope and level of detail in each version should take into account how much time the targeted audience is likely to be able to give to reading the report, and the level of detail they may require in order to be fully informed before taking action. (Maryland, for example, has prepared a full version and an executive summary version of its cost study).

Organization and Presentation. Organizing and presenting the findings and recommendations of an extensive cost analysis effort is a complex task. All of the relevant findings should be reported along with data sufficient to explain and support each finding. When a report is not organized and presented clearly, the essential findings can be lost or obscured by a deluge of facts and figures.

Simple visual displays sometimes can help communicate the most important findings. For example, a series of pie charts could show: (1) the relative contributions of federal, state, and other financing resources to the total amount of current state expenditures; (2) how much the federal contribution might increase through more effective use of Medicaid and existing state resources as match; and (3) what a combination of federal, state, and other contributions might look like if the state were able to finance the entire system of services envisioned.

More complicated charts, tables, and graphs also are helpful in helping your audience understand the complex relationships between services and sources of funding, but these usually require more of the reader's time for study and analysis. For example, the Pennsylvania Resource Matrix in Appendix B offers a detailed display of the relationships between the various



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funding sources being used in the state and their service system. However, one cannot comprehend the information contained in the Pennsylvania matrix through a quick scan.

Reporting Recommendations. The recommendations coming from a cost analysis study might address a variety of areas. One area could be how such studies could be carried out more efficiently and accurately in the future. Those conducting the study will have learned a great deal about how to restructure the ways in which information on services and cost data should be routinely collected, stored, and retrieved throughout the state, in order to improve the state's capacity to conduct future cost analyses. Serious consideration should be given to adapting and expanding the data collection requirements contained in Parts B and H of the Education of the Handicapped Act. A state's data collection system should assist states in making service decisions, and not viewed as only a reporting requirement of the Federal government. Another area for recommendations could be how the current system of services and payment for services could be improved, regardless of the state's plans for expanding services in the future. Recommendations might address such issues as how to improve local coordination of services and resources, how to strengthen state interagency planning and coordination, and what statutory and regulatory changes would remove current barriers to accessing services or financing resources for families in a timely way.

Inevitably, however, recommendations must address questions concerning future state budget needs and requests for state appropriations. Based on the findings of the cost analysis, recommendations should speak to what additional state appropriations are needed in order to achieve the availability of full services for all eligible children and families throughout the state. Is such an increase politically and/or economically feasible for the state at this time? If it is, how might those additional funds be included within and among the appropriations requests of the various state agencies? One way to address these issues in your recommendations is to present pros and cons of preparing and submitting a coordinated budget request among several state agencies verses a having one agency request all of the additional resources needed.

If obtaining the additional resources needed is judged not to be politically or economically feasible at this time, what adjustments in the envisioned system of services, if any, could be made that would make it possible to achieve full services on a more limited scale? What would be the policy implications of those changes? What would be the consequences for the state of making such policy changes? For example, under Part H, one option could be to tighten the state's eligibility criteria, thereby reducing the number of eligible children to be served. Remember, though, as eligibility is tightened the average cost per child rises. However, more federal match programs may be available for these children.

If the findings of the initial cost study appear to be ominous in terms of achieving the full entitlement provisions of P.L. 99-457, it is likely that further study will be needed, and the process outlined in this document would be repeated in some modified form. In any case, the need to estimate the costs of providing early intervention and/or preschool special education will be an ongoing one for all states. Unless your state has been serving infants, toddlers and/or preschool age children with special needs for some time, any projections about numbers for costs should be viewed as short-term. Your state should consider planning a longitudinal study to determine actual costs in the long-term.



### **SUMMARY**

The purpose of this document has been to offer a nine-step framework for projecting the costs of providing early intervention and preschool special education services. As has been shown, there are a variety of methods for estimating costs and many different ways to find the necessary variables used in the methodologies. There is no single correct way of projecting costs. A particular method may work in one state and not in another. The best method for your state depends upon the level and quality of data you can collect, and the resources available for conducting a cost analysis.

It must be stressed once again that the prevalence rates, service utilization rates, or costs of services presented in this document should not be used as a substitute for conducting your own cost analysis. You will not be able to satisfy all the questions key decision makers will ask unless you have given serious consideration to the variables and methodologies and their implications for implementing services in your state.

It also is crucial that you subtract all current expenditures, existing resources, and potential funds that might be available but are not currently being fully utilized (e.g., Medicaid) from the estimated total cost of providing services. Unless you incorporate this step, you will not have an accurate picture of what additional state funds may be needed to implement a statewide system. Failure to do this may jeopardize your chances.

Finally, take some time to prepare the report presenting your findings and recommendations. State the purpose of your report. Keep the intended audience(s) and other possible audiences in mind as you draft the report. Make sure your report is easy to read and easy to follow. Remember that the way the findings and recommendations are presented can be just as important as the findings and recommendations themselves.



### **ENDNOTES**

- Information in this document about Ohio comes from: Sanders, K. (1989). One Method of Cost Projection for Serving 3-5 Year Old Children with Handicaps. Paper presented at the NEC\*TAS workshop on Collaborative Financing of Early Intervention and Preschool Services, Washington, DC.
- 2) Information in this document about Maryland comes from: Estimated Fiscal Impact of Early Intervention Services in Maryland. (16 October 1989). Baltimore, MD: Office of the Special Secretary for Children, Youth and Families. [Draft]
- 3) Information in this document about Washington (State) comes from unpublished research by John Bowden (1990).
- 4) Information in this document about Kentucky (unless otherwise noted) comes from: Kentucky Services for Preschool Children with Handicaps: Partnerships in Education. (January 1990). Frankfort, KY: Department of Education.
- 5) For an excellent, in-depth discussion of cost considerations, see: Barnett, W.S., & Escobar, D.M. (1989). Understanding Program Costs. In C. Tingey (Ed.), <u>Implementing Early Intervention</u> (pp. 49-62). Baltimore, MD: Paul H. Brookes Pubs.
- 6) Expenditures in Preschool Programs. (1990). In <u>Shaping the Future</u> (Part 2, n.p.). Lexington, KY: Federal Regional Resource Center (FRRC).
- 7) What Are The Costs? (1990). In <u>Shaping the Future</u> (Part 2, n.p.). Lexington, KY: Federal Regional Resource Center (FRRC).
- 8) Information in this document about South Carolina (unless otherwise indicated) comes from: A Report to the General Assembly of South Carolina on Education and Related Services for Preschool Handicapped Children (Ages 3-5). (March 1990). Columbia, SC: Office of Programs for the Handicapped, State Department of Education.
- 9) Garwood, G. (15 March 1989). Final Report: A study of the Fiscal Impact of Providing Special Education and Related Services to South Carolina's Unserved Preschoolers with Handicaps. Unpublished manuscript.



### APPENDIX A

WORKSHEETS FOR ESTIMATING THE COSTS OF PROVIDING EARLY INTERVENTION OR SPECIAL EDUCATION SERVICES



### WORKSHEET FOR DETERMINING NUMBER OF CHILDREN NEEDING SERVICES

### This worksheet can be used for:

\* Determining the number of eligible children; \* Determining how many children will be served; and \* Determining how many children are currently unserved

	Steps		Example
1)	How many children in your state age birth to 3 or 3 through 5 years?		233,300
2)	What prevalence rate will be used to estimate the number of eligible children?	x	X <u>3%</u>
3)	Multiply the population by the selected prevalence to determine the eligible population.	=	= 7,000
4)	What percentage of the eligible children do you expect to identify, diagnose, and serve?	x	X <u>80%</u>
5)	Multiply the eligible population by the percentage expected to be served to determine the expected number of children to be served.	=	= 5,600
6)	How many children are currently provided services?	•	3.000
7)	Subtract the number of children currently provided services from the number of eligible children expected to be served to determine how many children are currently unserved.	=	= 2,600



### WORKSHEET FOR ESTIMATING AN AVERAGE PER CHILD COST OF PROVIDING SERVICES

### This worksheet can be used for:

- Determining an average per child cost;
  Determining the total costs of services; and
  Determining the additional state funds needed.

	Steps		E	<u>kample</u>
1)	How many children do you expect to serve?			5,600
2)	What is Average Per Child Cost of providing services?	x	x	_\$7.000
3)	Multiply the Average Per Child Cost by the number of children you expect to serve to determine the Total Costs.	=	= \$3	9,200,000
4)	Determine what level of funding is currently provided and potentially available for services.		- <u>\$2</u>	21.200.000
5)	Subtract current and potential funds from Total Costs to determine the Additional State Funds Needed.	=	= \$1	18,000,000

Notes: In determining the level of funding currently provided and potentially available for services, be sure to include all federal, state, local, and private sources (including public and private insurance).



### WORKSHEET FOR ESTIMATING AVERAGE PROGRAM COSTS OF PROVIDING SERVICES

Number of children expected to be served?		<del></del>	<del></del>
		Program	Percentage
What types of programs will provide services?	- -		
What percentage of children are expected to be served in each of the types of programs?	- - -		
m cn	No. 1. CONTINUE	O	T-1-1 O-1
Type of Program	Number of Children	Cost per Child	Total Cost
Itinerant Self-contained Home-based Combination Other model			
			<del></del>
Total			
Subtract current and potential funds from Total Costs to determine the Additional State Funds Needed			

Notes: In determining the level of funding currently provided and potentially? • • • • ble for services be sure to include all Federal, State, local, and private sources (including public and private insurance).



### WORKSHEET FOR ESTIMATING DISABLING CONDITION AVERAGE COST

- 1) Determine number of children to be served.
- 2) Determine appropriate disabling conditions.
- 3) Determine percentages of children for each disability.
- 4) Multiple percentages by children expected to be served.
- 5) Determine average cost for serving each disability.
- 6) Multiply number of children in each disability category by the average cost for each disability.
- 7) Add up the total costs for each disability category.
- 8) Subtract all current and potential resources.

Disabling Condition	Number of Children	Cost per <u>Child</u>	Total Cost
Serious behavior disability Orthopedically impaired Health impaired Moderate mental retardation Severe mental retardation Multihandicapped Deaf Hard of hearing Visually impaired Deaf-Blind Communication disordered			
Other disability			
Total			
Subtract current and potential resources			
Additional state funds needed			=



# WORKSHEET FOR ESTIMATING PER UNIT COSTS BY SERVICE AND SETTING

ler 	
Other	
Residential Facility	
Hospital	-
Early Intervention Center	
Outpatient Facility	
Nursery/ Childcare	
Family Childcare	
Home	
Service/Setting	Audiology Case Management Counseling Family Training Health Initial Evaluation Medical Nursing Nutrition Occupational Therapy Physical Therapy Physical Therapy Psychological Respite Care Social Work Special Instruction Spech-Language Usage Transportation Other

Determine the costs of the different types of services according to the setting in which the service is provided. These costs can then be placed in the proper position within the matrix. Some services may be inappropriate for some settings and should be costed as "\$ 0".

After you have determined the unit cost for each service and each setting, the unit costs can be transfered to the second to last column in Worksheet #6. From discussion material prepared by Robert Sheehan for a session on financing at the NEC\*TAS LRE Conference, August 1989, Annapolis, MD. Reprinted with permission.

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## WORKSHEET FOR DETERMINING AVERAGE PER SERVICE UNIT COSTS

TOTAL COST OF	
COST	
TOTAL UNITS NEEDED	
UNIT PER CHILD	·
NUMBER CHILDREN SERVED	
ESTIMATED UTILIZATION RATES	
SERVICES	Audiology Case Management Counseling Family Training Health Initial Evaluation Medical Nutrition Occupational Therapy Physical Therapy Psychological Respite Care Social Work Special Instruction Special Instruction Speech-Lanaguage Usage Transportation Other

Total Costs of All Services

Current and Potential Funding Resources

For Additional State Funds Needed, Subtract Funding Sources from Total Cost

"

\*A home visit in which an infant is receiving another early intervention service such as occupational therapy would be counted as occupational therapy, not as a home visit.



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### APPENDIX B

### A MATRIX PREPARED BY THE PENNSYLVANIA DEPARTMENT OF PUBLIC WELFARE TO DISPLAY THE RELATIONSHIPS BETWEEN SERVICES AND FINANCING RESOURCES

Please refer to Step 9 of the text for a discussion of this matrix.

From information developed by the Pennsylvania Department of Public Welfare (1990). Reprinted with permission. For more information, contact Mel Knowlton, Director, Division of Policy Development and Program Support, Department of Public Welfare, Health and Welfare Building, Room 302, Harrisburg, PA 17120, (717) 783-5764.



KEY

### KEY TO RESOURCE MATRIX

- C = Current resources in use for EI support. (Services being paid for by existing EI Program.)
- CL = Current but limited resource.
- P = Potential resource needing coordination to arrange.
  (Services that could be used in EI, but paid for
  with funds other than EI.)
- N = New funding or resource needing to be developed.

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